

# Rhodora

JOURNAL OF THE  
NEW ENGLAND BOTANICAL CLUB

Conducted and published for the Club, by

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Vol. 50.

September, 1948.

No. 597.

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Subscriptions (making *all remittances* payable to **RHODORA**) to

Dr. A. F. Hill, 8 W. King St., Lancaster, Pa., or, preferably, Botanical Museum, Oxford St., Cambridge 38, Mass.

Entered as second-class matter March 9, 1929, at the post office at Lancaster, Pa., under the Act of March 3, 1879.

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ORIGANUM FLEXUOSUM Walt. = PYCNANTHEMUM FLEXUOSUM (Walt.) BSP., as to basonym only = *P. hyssopifolium* Benth., both figs. from Walter's TYPE: FIG. 1, TYPE,  $\times \frac{2}{5}$ ; FIG. 2, inflorescence,  $\times 3$ .

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## STUDIES OF AMERICAN TYPES IN BRITISH HERBARIA

M. L. FERNALD AND BERNICE G. SCHUBERT

(Continued from page 208)

*Sium suave* Walt. Fl. Carol. 115 (1788).—In RHODORA, xlv. 454 (1943) the senior author, recording the extension northward into southeastern Virginia of *S. floridanum* Small, Man. Se. Fl. 976, 1506 (1933), suggested that the type of Walter's species could have been a specimen of the latter species. Fortunately, however, the fragment preserved in the Walter collection is from perfectly characteristic material of the wide-ranging northern, as well as southern, plant, with stiffly ascending and strongly corrugated stems, relatively coarse rays of the umbel and very numerous flowers in the umbellets, of the plant now generally known as *S. suave*.

A synonym of *S. floridanum* is *S. lineare* Michx.,  $\beta$ . *intermedium* Torr. & Gray, Fl. i. 611 (1840). One of Chapman's original specimens in the Gray Herbarium is definitely of *S. floridanum*. Should the latter eventually be placed under *S. suave* as an extreme variation, Torrey & Gray's varietal name will have to be considered.

*Angelica lobata* Walt. Fl. Carol. 115 (1788).—The type, a badly crumpled leaf is, without doubt, from a plant of *Ligusticum canadense* (L.) Britt., as already suggested by Mathias & Constance in N. Am. Fl. 28b. 145 (1944), a characteristic woodland species of the southeastern states.



*LEUCOTHOE editorum*, nom. nov. *L. Catesbaei* sensu Gray, Man. ed. 2, 252 (1856), not *Andromeda Catesbaei* Walt. Fl. Carol. 137 (1788), basonym.

In RHODORA, xlvii. 169-171 (1945), the senior author pointed out the utter confusion which has existed as to the true basis of *Leucothoe Catesbaei*, through the fact that Walter's type had not been clearly understood and that Pursh in describing *Andromeda spinulosa* had well defined the montane species but had given the locality as "Lower Carolina" and had cited *A. Catesbaei* Walt. as an exact synonym.

The Walter type (572), clearly labeled *Andromeda Catesbaei*, proves to be a flowering branch of very characteristic *Leucothoe axillaris* (Lam.) D. Don or *Andromeda axillaris* Lam. Encycl. i. 157 (1783). In the Synoptical Flora of North America, ii. 34 (1878), Gray treated the montane species with caudate-attenuate leaf-tips and acutish bracts and sepals as *L. Catesbaei*, with the synonym *A. spinulosa* Pursh "excl. habitat"; and he added the parenthetical note, "Pursh characterized the two species but transposed the habitats", Pursh having cited the coastwise *Andromeda axillaris* as "on the mountains" and, as already noted, his *A. spinulosa* from the low country. Since *Andromeda spinulosa* Pursh had the exact synonym *A. Catesbaei* Walt., it must be treated as having an illegitimate name because Pursh should have used the earlier name which he cited. Other names which have been assigned to the synonymy of the montane shrub, *Leucothoe editorum*, are *Andromeda Walteri* Willd. Enum. 453 (1809), a renaming of *A. Catesbaei* Walt., and *A. lanceolata* Desf. Cat. Pl. Hort. Paris, 136 and 398 (1829), an unencumbered name but unfortunately antedated by *A. lanceolata* Wallich (1820) and *A. lanceolata* Vell. (1825). There seems, therefore, to be no binomial except possibly the later homonym, *Andromeda lanceolata* Desf., available which can legitimately be taken up for the plant which has erroneously passed as *L. Catesbaei*.

It is important to record the fact that it was clearly stated in his manuscript notes of 1887 by Asa Gray of "'Andromeda Catesbaei 572'. It is *A. axillaris*!" Apparently Gray found no opportunity to make the correction.

ASCLEPIAS POLYSTACHIA Walt. Fl. Carol. 107 (1788) was well described:

*polystachia* fol. petiolatis oppositis lanceolatis laevibus,  
 13.           subtus venosis umbellis pluribus terminalibus  
               lateralibusque, petalis et auriculis cornicu-  
               latis purpurascenti-rubris, corpusculo latere  
               fusco, apice albo; caulis 4-pedalibus.

This description, with "fol. petiolatis . . . lanceolatis laevibus, . . . umbellis . . . terminalibus lateralibusque", is so little suggestive of *A. rubra* L. which has, to quote Gray (Syn. Fl.), "leaves . . . tapering from near the rounded or obscurely cordate base to an acuminate apex", that it is surprising that Gray, Syn. Fl. ii<sup>1</sup>. 90 (1878), should have suggested the identity of *A. polystachia* (although with a saving "?") with *A. rubra*. He also suggested, likewise with a query, the identity of *A. cordata* Walt., l. c. 105, with *A. rubra*. There is no preserved specimen of the latter but Walter's "fol. cordato-lanceolatis subsessilibus" and his other characters pretty definitely indicate that his *A. cordata* is *A. rubra* L. (1753).

Walter's account of his *A. polystachia* is very similar to Gray's (Syn. Fl.) description of the leaves of *A. phytolaccoides* Pursh and Small's (Man.) account of the same species, as the earlier *A. exaltata* "(L.) Muhl.", that one automatically looks for a Walter specimen to match these accounts. Gray has "Bright green and glabrous: stem 4 or 5 feet high: leaves membranaceous, from oval to ovate-lanceolate, acuminate at both ends, short-petioled, 4 to 8 inches long" (compare "fol. petiolatis . . . lanceolatis laevibus"—Walt.). Small, describing the flowers of the same species, which extends southward to Georgia and Mississippi, says: "corolla-lobes greenish or greenish-purple . . . : hoods . . . white or flushed with pink" (compare "petalis et auriculis corniculatis purpurascenti-rubris, corpusculo latere fusco, apice albo"—Walt.). Fortunately, on p. 10 of the Fraser volume there is a comparatively good foliage-specimen of "*Asclepias Novum*" with the ovate-lanceolate leaves acuminate to both ends, petioled and with the venation of the leaves of characteristic *A. exaltata* or *phytolaccoides*.

From the bibliography given by Britton & Brown, iii. 9 (1898),

*A. Syriaca* var. *exaltata* L. Sp. Pl. Ed. 2, 313. 1762.

*Asclepias exaltata* Muhl. Cat. 28. 1813.

*A. phytolaccoides* Pursh, Fl. Am. Sept. 180. 1814,

one might infer that Walter's binomial of 1788 should be taken




up, but Muhlenberg happened, although citing no basonym nor giving any diagnosis, to hit on the correct binomial; for in *Species Plantarum*, ed. 2, l. c., Linnaeus cited under his *A. syriaca*,  $\beta$ . *exaltata* an earlier reference. Following this back we find the *species*, properly with a binomial and a very detailed description, as *A. EXALTATA* L. in *Amoen. Acad.* iii. 404 (1756). That is the correct binomial.

*ORIGANUM FLEXUOSUM* Walt. *Fl. Carol.* 165 (1788), our PLATE 1112, was one of two new species described by him under a genus defined "*Involucrum multisetum verticillo subjectum*" etc.; i. e. his *Origanum* was primarily the species of *Pycnanthemum*,  $\S$  *Tullia* Benth., with bristle-tipped calyx-teeth. Walter's description was

flexuosum 2.	capitulis axillaribus, floribus sessilibus,
An satureja	bracteis quam corollulae minoribus, caule
virginiana?	flexuoso, foliis sublinearibus.
LINN.	

This species is one of the two of the genus represented, without specific name, on p. 79 in the Fraser series. The specimen (our PLATE 1112, FIG. 1,  $\times \frac{2}{5}$ , FIG. 2,  $\times 3$ ) is an unusually good one of the characteristic plant of Walter's region with heads on axillary branches, calyx-lobes aristate, stem often flexuous and leaves "sublinear" (linear-oblong to narrowly oblong-lanceolate and blunt, entire or nearly so) which was described as *Pycnanthemum hyssopifolium* Benth. (1834), almost as if he had Walter's specimen before him: "foliis subsessilibus oblongo-lanceolatis linearibusve obtusis subintegerrimis . . . , verticillastris paucis multifloris laxiusculis, bracteis subulatis aristatis extimis oblongis, calycis dentibus subaequalibus subulatis rigidis". There is no question about the true identity of *Origanum flexuosum* Walt. with the consequent carelessly made combination, *PYCNANTHEMUM FLEXUOSUM* (Walt.) BSP., *Prelim. Cat. N. Y. Pl.* 42 (1888), the combination unintelligently published without bibliographic citation as *P. "flexuosum, (Walt.) (P. linifolium, Pursh.)"*, unintelligently because the Walter description and plant are of a section very distinct from that containing Pursh's *P. linifolium*! In *Mem. Torr. Bot. Cl.* v. 279 (1894) Britton clarified the essential bibliography by basing *Koellia flexuosa* (Walt.) Britton on *Origanum flexuosum* Walt. *Fl. Carol.* 165 (1788), overlooking the





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PINGUICULA CAERULEA Walt.: FIG. 3, TYPE,  $\times$  ca.  $\frac{1}{3}$ , mislabeled by Fraser as *Utricularia gibba*; FIG. 4, plant and flowers,  $\times$  1, from Summerville, South Carolina, Hunnells, no. 8115.

P. LUTEA Walt.; FIG. 2, TYPE,  $\times$   $\frac{1}{2}$ .

OXALIS VIOLACEA L.: FIG. 1, inflorescence,  $\times$   $\frac{1}{2}$ , mislabeled by Fraser as *Pinguicula caerulea*!

fact that the combination *K. flexuosa* (Walt.) MacMillan, based on "*Nepeta* [instead of *Origanum*] *flexuosa* Walt.", without citation of page (presumably not seen by MacMillan), was published in *Metasp. Minn. Val.* 452 (1892), for a mixture of three species said to grow in Minnesota, at least 650 miles northwest of the western limit of Walter's species. Britton gave other synonyms, including *P. linifolium* Pursh (1814) and "*Satureia Thymus Virginicus* L. Mant. 2: 409 (1771)".

Before discussing the latter names it should be noted that Grant & Epling, *Study of Pycnanthemum*, Univ. Calif. Pub. Bot. xx. no. 3: 224 (1943), explicitly say, we know not why: "there are no specimens of this species [Walter's *Origanum flexuosum*] among the Walter plants in the British Museum; *P. aristatum* is represented, however". Since *P. aristatum* Michx. (i. e. *P. setosum* Nutt.—see Fernald in *RHODORA*, xlvii. 178 (1945)) has, as correctly described by Grant & Epling "leaf blades narrowly ovate, infrequently ovate-lanceolate, usually rather acute, . . . 1–3 cm. broad", it is difficult to understand how the Walter specimen could have been so misidentified; there is nothing preserved in the Fraser series but this one easily identifiable specimen and two unmatched fragments which have subulate-aristate calyx-lobes but very narrowly linear leaves. These fragments, which are surely not of the section *Brachystemum* Benth., which contains *P. linifolium*, definitely belong, like *P. setosum* and true *P. flexuosum* (*P. hyssopifolium*) to § *Tullia* and apparently represent an unrecognized species, which should be sought in eastern South Carolina.

In the synonymy of *Koellia flexuosa* sensu Britton, l. c., excluding basonym, there appears another name which was published earlier than *Brachystemum linifolium* Willd. Enum. 623 (1809), basonym of *Pycnanthemum linifolium* (Willd.) Pursh, Fl. Am. Sept. ii. 409 (1814). This was the already quoted "*Satureia Thymus Virginicus*" L. Mant. ii. 409 (1771) which leads us to the Linnaean account. This gives no justification for the trinomial listed by Britton, for here is what Linnaeus said:

*Satureja virginic.* THYMUS capitulis terminalibus, caule erecto, foliis lanceolatis rectius.

Without further explanation it would seem that here was a variant of the old and much confused *S. virginiana* L. (1753),



which has been well established in the sense of *P. lanceolatum* Pursh (see Grant & Epling, l. c. 221). Grant & Epling cite under *Pycnanthemum flexuosum* in their sense the synonym *Koellia capitata* Moench, Meth. 408 (1794) which, obviously antedates *Brachystemum linifolium* Willd. (1809) and *Pycnanthemum linifolium* (Willd.) Pursh, but Moench, describing a plant "foliis lanceolatis", cited as an unquestioned synonym "*Thymus virginicus*. Linn.". Since he did not take up this earlier name Moench's name was illegitimate; its lanceolate leaves are not good for *P. linifolium*. Incidentally, Grant & Epling, with many collections before them could map the latter species (their map 11) from South Carolina only from the mountains, and assiduous collectors have not secured it from the Coastal Plain south of North Carolina. In other words it is not known from near Walter's home, where the plant Walter described and collected abounds (see Grant & Epling, map 13). With many stations recorded in eastern but none in western South Carolina and copious material from Walter's own county the identity of his species might have been surmised.

The upshot seems to be that, since the preserved specimen which exactly coincides with Walter's description of his *Origanum flexuosum*, is characteristic *Pycnanthemum hyssopifolium*, we are forced to a change:

PYCNANTHEMUM FLEXUOSUM (Walt.) BSP. Prelim. Cat. N. Y. Pl. 42 (1888), as amplified by Britton in Mem. Torr. Bot. Cl. v. 279 (1894) as to basonym, not sensu BSP. *Origanum flexuosum* Walt. Fl. Carol. 165 (1788). *P. hyssopifolium* Benth. Lab. Gen. Sp. 329 (1834). *P. aristatum* Michx., var. *hyssopifolium* (Benth.) Gray, Syn. Fl. N. Am. ii'. 354 (1878). *Koellia flexuosa* (Walt.) MacMillan, Metasp. Minn. Val. 452 (1892) as to name only; sensu Britton in Mem. Torr. Bot. Cl. v. 279 (1894), not as to other synonyms.

We now reach the stiffly branched and tough (not "flexuous") plant, of Bentham's § *Brachystemum*, which has been erroneously passing as *Pycnanthemum flexuosum*. That it is *P. linifolium* (Willd.) Pursh, Fl. Am. Sept. ii. 409 (1814), based on *Brachystemum linifolium* Willd. Enum. Hort. Berol. 623 (1809), there is no doubt; but it is also *P. tenuifolium* Schrader, Hort. Gott. 10, tab. iv (1809). Schrader gave a very full analytical description of the plant (unfortunately said to have its "Habitat in Archi-

pelago'') and a full-size colored plate of our common linear-leaved species which Willdenow defined the same year. But by present rules of nomenclature Willdenow's *Brachystemum linifolium* was an illegitimate name for, after a two-line diagnosis, Willdenow cited as exact synonyms the earlier *B. virginicum* Michx., which rested on *Thymus virginicus* L., and also *Thymus virginicus* of "Sp. pl. ed. W. 3. p. 145". Since the *Thymus virginicus* of Willdenow's Species was the *T. virginicus* L., Willdenow should have retained the original specific epithet. Thus, although published slightly later, *Pycnanthemum tenuifolium*, beautifully described and illustrated and without citation of an earlier name, is the legitimate name of the plant, the bibliography of which is

PYCNANTHEMUM TENUIFOLIUM Schrader, Hort. Gott. 10, t. iv (1809). *Satureja virginiana* L. Sp. Pl. ii. 567 (1753) in part only. *Thymus virginicus* L. Mant. ii. 409 (1771), in part only, renaming of the preceding. *Brachystemum virginicum* Michx. Fl. Bor. Am. ii. 6 (1803) as to plant only. *B. linifolium* Willd. Enum. 623 (1809) as to plant, name illegitimate. *P. linifolium* Pursh, Fl. Am. Sept. ii. 409 (1814). *P. flexuosum* sensu BSP. Prelim. Cat. N. Y. Pl. 42 (1888), as to plant, not as to basonym. *Koellia flexuosa* MacMillan, Metasp. Minn. Val. 452 (1892) in part only, not as to basonym; Britton in Mem. Torr. Bot. Cl. v. 279 (1894) as to plant, not as to basonym.<sup>1</sup>

COLLINSONIA SEROTINA Walt., Fl. Carol. 65 (1788), was well described "fol. magnis oppositis ovatis, petiolis longis, *supremo pari unice sessili, cordato*; panicula terminali ramosissima". Asa Gray, in the Synoptical Flora, ii<sup>1</sup>. 351 (1878), cited it without question as identical with *C. punctata* Ell., Sk. i.36 (1816), which he treated as *C. canadensis*, var. *punctata* (Ell.) Gray. The species is now often treated as distinct and in such cases Walter's name should have precedence over Elliott's. In the varietal category Elliott's epithet is applicable.

PINGUICULA CAERULEA Walt. Fl. Carol. 63 (1788), as represented in the Fraser series of Walter's plants, our PLATE 1113, FIG. 3,  $\times$  ca.  $\frac{1}{3}$ , well illustrates the almost absurd confusion made

<sup>1</sup> On sheets in the Gray Herbarium we find the following combination which should be published, as it indicates the correct status of the plant:

PYCNANTHEMUM TORREI Benth., var. *leptodon* (Gray) Boomhour, comb. nov. in Herb. Gray. *P. pilosum* Nutt.,  $\beta$ . *leptodon* Gray in Am. Journ. Sci. xlii. 46 (1842). *P. leptodon* Gray, Syn. Fl. N. Am. iii<sup>1</sup>. 355 (1878).

by Fraser or the Frasers in attempting to identify the specimens or fragments. On page 83 of the series a small umbel, FIG. 1, mounted just above the properly identified *Pinguicula lutea* Walt. (FIG. 2), bears Fraser's label "*Pinguicula caerulea*". Asa Gray, as shown in his manuscript notes, recognized that this fragment is an inflorescence of *Oxalis violacea*. However, on another page (no. 526 on p. 80), there is a different specimen, correctly called *O. violacea*, this one with bulb and leaves, as well as umbel. Finally, specimen no. 487 on p. 104, bearing the appended name "*Utricularia gibba*", solves the mystery, for this is a plant of *Pinguicula* (our FIG. 3,  $\times$  ca.  $\frac{1}{3}$ ) with dark and opaque rosette-leaves and a characteristic flower, which is readily matched (as to profile) by such a representative sheet of *P. elatior* Michx. (1803) as that of F. W. Hunnewell, no. 8115 (FIG. 4), from Summerville, South Carolina. The decision by Barnhart in Addisonia, xviii. 21, t. 587 (1933), to take up *P. CAERULEA* Walt. (1788) instead of *P. elatior* Michx. (1803) seems quite justified. In fact, when he published *P. elatior* Michaux himself suggested that it might be Walter's *P. caerulea*.

*DIANTHERA OVATA* Walt. Fl. Carol. 63 (1788) was well described but there seems to be no specimen preserved. It was transferred in 1900 to *Justicia* as *J. ovata* (Walt.) Lindau in Urban, Symb. Antill. ii. 237 (1900). In RHODORA, xliii. 641 (1941) the senior author took up for it the later *J. humilis* Michx. (1803) because *J. ovata* Dietrich in Steudel, Nom. ed. 2, i. 838 (1840) seemed to invalidate Lindau's combination. Unfortunately, however, as we are now beginning to understand, many names newly published by Steudel are illegitimate and have no nomenclatural force because they were published as synonyms only. Examination of the name *J. ovata* Dietr. clearly shows that it was a mere synonym. On p. 838 of Steudel it appeared in italics (as a synonym) under *Justicia* as "*ovata. Dietr. Dicliptera peruviana*" and on p. 504, under the maintained *Dicliptera* (with *Justicia* as a generic synonym) D. "*peruviana. Juss.*" had the synonym *Justicia ovata* Dietr. Index Kewensis also lists *J. ovata* E. Meyer in Drège, Zwei Pfl. Docum. (Flora, xxvi<sup>2</sup>. Beig.) 196 (1843), from South Africa. There again the name had no nomenclatural force for it was a *nomen nudum*. In enumerating the plants of different localities Drège listed on p. 149, his no.







EUPATORIUM PILOSUM Walt. = *E. verbenaeifolium* Michx. and *E. teucrifolium* Willd., all figs. from Walter's TYPE: FIG. 1, TYPE,  $\times \frac{2}{5}$ ; FIG. 2, upper leaf,  $\times 2$ ; FIG. 3, portion of inflorescence,  $\times 2$ .

4818 as "*Justicia ovata*, 4818". Then on p. 196, in an alphabetical list of his South African plants, he gave *Justicia* "ovata E.M."). That seems to be the full publication of *J. ovata* E. Meyer. Later authors have regularly cited it in the synonymy of the species with which the Drège material has been identified but they do not seem to have defined it as *J. ovata*. Thus, Presl, Bot. Bemerk. 95 (1844), without a word of definition, said "*Justicia ovata* E. Meyer in Drege—est *Dicliptera ovata* Presl". In his treatment of the *Acanthaceae* in DC. Prodr. xi. 336 (1847) Nees ab Esenbeck described in detail the Drège material as *Rhytiglossa ovata*, with the synonym "*Justicia ovata* E. Meyer! cat. pl. Drèg." but the latter name can hardly be said to have been defined, except as a synonym. Similarly, C. B. Clarke in Thiselton-Dyer, Fl. Capensis, v<sup>1</sup>. 80, 81 (1901) takes up *Isoglossa* "*ovata* (Lindau in Engl. & Prantl, Pflanzenfam. iv. 3B, 344)", giving a full description of the South African plant with the synonym "*Justicia ovata*, E. Meyer in Drège" etc. cited, as if that name had been defined. Just to show how hit-or-miss is the bibliographic work of too many of us (and we all get caught unless we scrupulously verify citations) we may turn to Clarke's reference (correct it would seem) to *Isoglossa ovata* Lindau in Engler & Prantl. Turning to the reference we find under *Isoglossa* "*I. ovata* (Nees) Ørst." along with many other binomials referred to Ørsted; but, unhappily, Ørsted in publishing the genus *Isoglossa* in Kjoeb. Vidensk. Meddel. for 1854: 155 (1855) made no combinations, merely saying, after his definition of the genus "*Rhytiglossa ciliata* et ceterae species capenses huc pertinent". According to *Index Kewensis* this constituted the publication of *I. ciliata*, but, even admitting that it does do so (by the International Rules), Ørsted certainly did not there publish *I. ovata*. The primary author of the trivial name *ovata* for the South African plant seems to be Nees. It surely can not be taken up as based on the undescribed *Justicia ovata* Dietr. with which this complicated digression began. But the combination *JUSTICIA OVATA* (Walt.) Lindau should stand for the North American plant which was later defined as *J. humilis* Michx.

*EUPATORIUM PILOSUM* Walt. Fl. Carol. 199 (1788) (our PLATE 1114, FIG. 1,  $\times \frac{2}{5}$ ; FIGS. 2 and 3,  $\times 2$ ), described: "foliis lanceolato-ovatis, basi obtusis, serratis sessilibus, calycibus pilosis",



has very generally been thought possibly to be the same as *E. verbenaeifolium* Michx. (1803), which antedates the identical *E. teucrifolium* Willd. (1804). Thus Gray, Syn. Fl. N. A. 2. 99 (1884), taking up *E. teucrifolium*, gave as its first synonym "*E. pilosum*, Walt. Car. 199?". This interrogated identity is given in Index Kewensis, doubtless following Gray, and Britton & Brown give it (also with the interrogation) under *E. verbenaeifolium*. Walter's description obviously applies to this common species of his region, in which the leaves of the primary axis are rounded to sessile bases, the reduced upper ones either sessile or with very short petioles. On the three pages of Fraser's series of Walter plants only one individual agrees with Walter's diagnosis. That, no. 755 (on p. 45), is a very characteristic inflorescence, with the lance-ovate, serrate and roundish-based leaves (although very short-petioled) of thoroughly typical *E. verbenaeifolium*, the type of the latter and a pilose involucre ("calycibus pilosis") shown in RHODORA xlvii. t. 910 (1945). The Walter specimen could well have been the pattern for the inflorescence of *E. verbenaeifolium* shown in Britton & Brown, Ill. Fl. iii. fig. 3624, p. 310 (1898). There seems no valid reason further to doubt that EUPATORIUM PILOSUM Walt. (1788) is the earliest and correct name for *E. verbenaeifolium* Michx. (1803) or *E. teucrifolium* Willd. (1804).

EUPATORIUM LINEARIFOLIUM Walt. Fl. Carol. 199 (1788). It has generally been inferred, without examination of Walter's material, that *E. linearifolium* is the extreme and wide-ranging variety of *E. hyssopifolium* L. with very narrowly linear or linear-oblongate leaves only 0.5–5 mm. broad, these opposite or most often in whorls of 4 or 6 and subtending very dense suppressed axillary branchlets of fascicled shorter leaves. Following this common interpretation the senior author named and illustrated this commonest variety of *E. hyssopifolium* as var. *linearifolium* (Walt.) Fernald in RHODORA, xlv. 460, pl. 737, fig. 3 (1942). Most surprisingly, however, there is nothing of this sort in the Fraser series of Walter's plants. The only one of Walter's preserved specimens which matches his description of *E. linearifolium*, "foliis linearibus integris subverticillatis, calycibus 3 ad 5-floris", is no. 671 on page 44. This specimen, with few-leaved axillary fascicles, is a good match for *E. tortifolium* Chapm. in

Bot. Gaz. iii. 5 (1878), with "leaves vertical, lanceolate, entire, . . . , the upper ones linear, alternate; . . . heads . . . 5-flowered; . . . Leaves 1-1½ in. long", Walter's "foliis linearibus . . . subverticillatis" evidently referring to the false whorls produced by the suppressed axillary branches of few leaves which regularly occur in *E. tortifolium*, as shown by isotypic material from Chapman and Ravenel's material from Santee Canal, the home of Thomas Walter. It is evident that the name *E. tortifolium* Chapm. (1878) must give way to *E. LINEARIFOLIUM* Walt. (1788).

The plant which has erroneously passed as *Eupatorium linearifolium* is

*E. HYSSOPIFOLIUM* L., var. **calcaratum**, nom. nov., foliis anguste linearibus vel lineari-oblongatis integris 0.5-5 mm. latis, laminis primariis 3-6 cm. longis oppositis vel verticillatis verticillis 4-6 foliis, fasciculo axillari densissime breviori.—Var. *linearifolium* sensu Fernald in RHODORA, xlv. 459, 460, pl. 737, fig. 3 (1942), not *E. linearifolium* Walt., basonym. TYPE from dry sands back of beach near Bass River Light, Dennis, Massachusetts, September 2, 1918, Fernald & Long, no. 17,448 in Herb. Gray.; isotype in Herb. Phil. Acad.

All others of Walter's new species of *Eupatorium*, in so far as specimens are preserved, seem to have been correctly interpreted. His *E. fusco-rubrum*, no. 733 on p. 46 of the collection, is small *E. purpureum* L. His *E. Marrubium* seems to be missing. *E. foeniculoides* (on p. 45) is represented by a large panicle of *E. capillifolium* (Lam.) Small, based on *Artemisia capillifolia* Lam. (1783); while *E. compositum* (on p. 46) is represented by a characteristic inflorescence. *E. cordatum* seems to be missing but a specimen of *E. incarnatum* is at the lower right hand corner of p. 46. No. 24 on page 44, marked simply "Eupatorium" is *Kuhnia eupatorioides* L. (1762). Another specimen, marked simply *Eupatorium* (at the right on p. 45), is a characteristic summit of *E. serotinum* Michx. (1803); this can not be reconciled with any species defined by Walter.

*CHRYSANTHEMUM CAROLINIANUM* Walt. Fl. Carol. 204 (1788). The specimen (684) in the Walter Herbarium is an exceptionally good one, the summit of a large flowering plant. It is, happily, what it was supposed to be when it was transferred to *Boltonia* as *B. caroliniana* (Walt.) Fern. in RHODORA, xlii. 487, pl. 642 (1940).

The plant from which the latter plate was made very closely matches Walter's specimen.

*CARDUUS SPINOSISSIMUS* Walt. Fl. Carol. 194 (1788), our PLATE 1115, FIG. 1,  $\times \frac{2}{5}$ , has generally been interpreted as identical with *Cirsium horridulum* Michx. Fl. Bor.-Am. ii. 90 (1803). This identification of the two may have started with Darlington, Fl. Cestr. ed. 2: 438 (1837), Darlington reducing *Cirsium horridulum* to *Carduus* "SPINOSISSIMUS, Walt.?" but giving a detailed description of the former. Even when, in RHODORA, xiii. 239, 240 (1911), Robinson pointed out that the combination *Cirsium spinosissimum* "(Walt.) Scop." was a sad confusion, since Scopoli's combination was really based on the European *Cnicus spinosissimus* L., he made no suggestion that Walter's plant is not *Cirsium horridulum*. The TYPE of Walter's *Carduus spinosissimus* is a whole plant, even including the base, but it is not *Cirsium horridulum*. Instead, it is a very characteristic, small specimen of *Cirsium Smallii* Britton in Britt. & Millsp. Baham. Fl. 458 (1920), a renaming of *Cirsium pinetorum* Small, Fl. Miami, 199, 200 (1913), not Greenm. (1905), Small having originally called it *Carduus pinetorum* Small, Fl. Se. U. S. 1308, 1341 (1903). Walter's plant is not only a good match for Florida material sent out by Small; it is almost identical with material collected from "flat pineland" by Ravenel close to Walter's home, in Santee Canal, South Carolina. Owing to the European *Cirsium spinosissimum* (L.) Scop. the name *C. SMALLII* has right-of-way.

Walter had two other species of *Carduus* and, from the character of the tiny snips which he gave to Fraser, Asa Gray was justified in his manuscript note of February 9, 1839, in writing merely "*Carduus* = 3 thistles!". He was then unfamiliar, of course, with *Cirsium Smallii*, which was first recognized in 1903, and the two fragments mounted beside that superior specimen were of species then unfamiliar to him. *Carduus virginianus* L. was clearly described by Walter "foliis lanceolatis spinulosis" etc. and he obviously had that species. His third species was *Carduus*

- carolinianus* foliis amplexicaulibus, hastato-pinnatifidis,  
 2. spinis inaequalibus ciliatis, subtus tomentosis,  
 calycibus aphyllis, squamis spinulosis, floribus  
 paucis rubris.

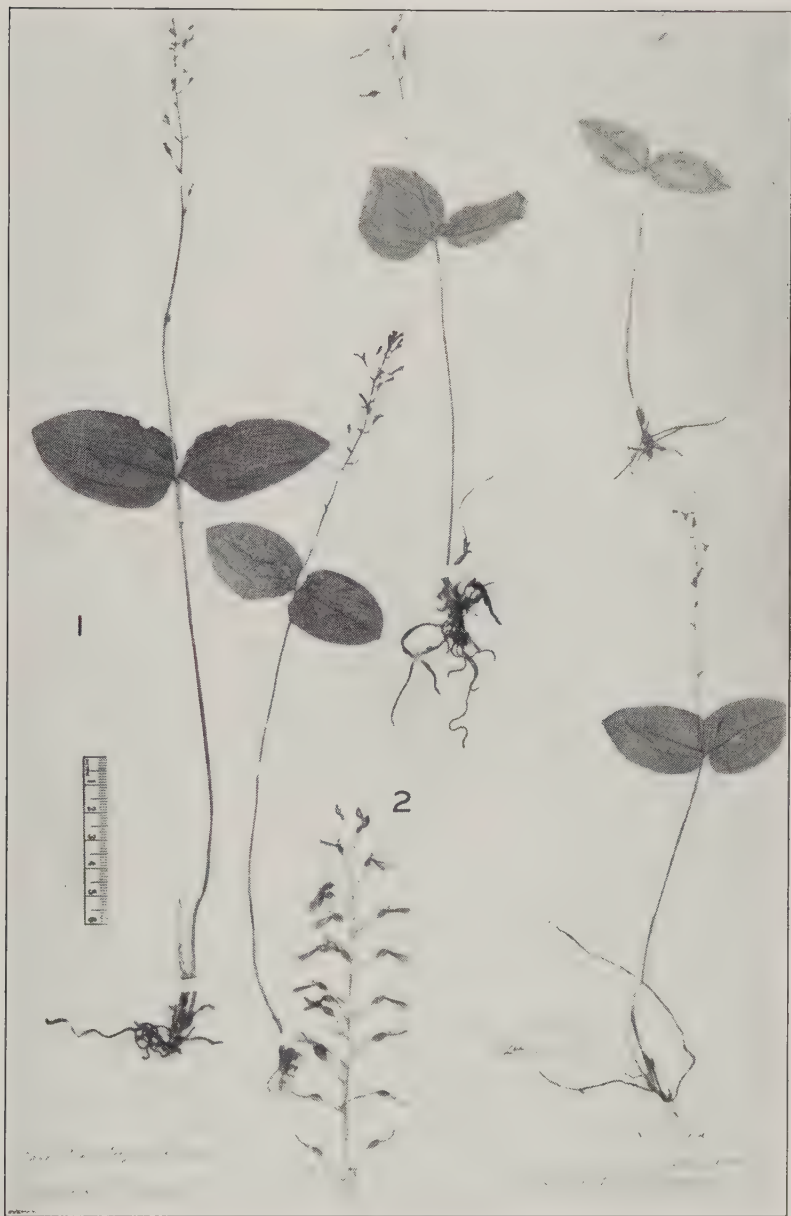






CARDUUS SPINOSISSIMUS Walt.: FIG. 1, TYPE,  $\times \frac{2}{5}$  = CIRSIUM SMALLII Britton, not *Cirsium spinosissimum* (L.) Scop.

CARDUUS CAROLINIANUS Walt. = CIRSIUM CAROLINIANUM (Walt.) Fernald & Schubert = *Carduus flaccidus* Small and *Cirsium flaccidum* (Small) Petrak: FIG. 2, Walter's TYPE,  $\times \frac{2}{5}$ ; FIGS. 3 and 4, portions of a recent specimen from Houston, Texas, E. Hall, no. 371,  $\times 1$ .



LISTERA BANKSIANA Lindl. = *L. caurina* Piper: FIG. 1, TYPE,  $\times \frac{2}{5}$  of *L. banksiana* at right; specimens,  $\times \frac{2}{5}$ , from Banks Island, Menzies, at left.

*L. CAURINA* Piper: FIG. 2, inflorescence,  $\times \frac{3}{5}$ , from Wreck Bay, west coast of Vancouver Island, W. R. Carter, no. 843.





In RHODORA, xlv. 509, 510 (1943) the senior author, engaged at that time in a close study of eastern North American *Cirsium*, pointed out the many characters which distinguish *C. flaccidum* (Small) Petrak in Beiheft. Bot. Centralbl. xxxv. Ab. 2: 543 (1917), based on *Carduus flaccidus* Small, Fl. Se. U. S. 1307, 1341 (1903), and *Cirsium virginianum* (L.) Michx. Among the many characters then noted were the following: "In *C. virginianum* the peduncle-like flowering branches have several bracteiform leaves, in *C. flaccidum* the peduncles are naked or with only 1 or 2 bracts; in *C. virginianum* the involucre is 1.5–3 cm. high, in *C. flaccidum* only up to 2 cm. high". The small bit preserved by Fraser (no. 376 on p. 25) is merely a portion of an inflorescence (our PLATE 1115, FIG. 2,  $\times \frac{2}{5}$ ) but it shows the naked leading peduncle of *C. flaccidum* and the involucre about 1.4 cm. high, a measurement below that shown in *C. virginianum* but duplicated or approximated by heads of many specimens of *C. flaccidum*. Fraser's fragment shows no well developed cauline leaves but numerous well collected specimens of *C. flaccidum*, such as Hall's material (our PLATE 1115, FIGS. 3 and 4) from slightly west of Small's type-region, in eastern Texas, well display the "foliis amplexicaulibus hastato-pinnatifidis spinis inaequalibus ciliatis" of *Carduus carolinianus*. They also show the naked leading peduncle as in the fragment preserved in the Fraser volume. It, therefore, seems that we should call the characteristic southern and inland species

**CIRSIIUM carolinianum** (Walt.), comb. nov. *Carduus carolinianus* Walt. Fl. Carol. 195 (1788). *C. flaccidus* Small, Fl. Se. U. S. 1307, 1341 (1903). *Cirsium flaccidum* (Small) Petrak in Beiheft. Bot. Centralbl. xxxv. Ab. 2: 543 (1917); Fernald in RHODORA, xlv. 509 (1943). Our PLATE 1115, FIGS. 2 and 3.

#### PART V. A FEW SPECIES OF LATER AUTHORS

BETULA EXCELSA Ait. Hort. Kew. iii. 337 (1789) is, as shown by the very complete TYPE preserved, not an American, although thought by Aiton to be "Nat. of North America", and by various American and European students guessed to be *B. papyrifera* Marsh. There must have been other misconceptions regarding it, these reflected in the specific name and the English "Tall Birch Tree", for the fruiting type shows round-ovate leaves

hardly 3 cm. long and nearly as broad, while the excellent plate of the cultivated *B. excelsa* in Watson, Dendr. Brit. ii. t. 95 (1825) is obviously from a similar source, the tree described by Watson as 12-14 feet high ("70-80 in native country"), the leaves "subcordate-rotund, subincised-dentate", after which Watson gave the "Country . . . Province of Maine, Hudson's River". As what many botanists would delight to call him, a native "Mainiac", the senior author can vouch that nothing like it is known from Maine (nor from "Hudson's River"). Schneider, Ill. Handb. Laubholzk. i. 108 (1904), called it a hybrid of *B. pumila* L. and *B. papyrifera*, a not very convincing identification, while Rehder, Man. Cult. Trees and Shrubs, 142 (1927) said "perhaps a form of *B. pubescens* [European]", a reasonable guess.

*FAGUS FERRUGINEA* Ait. Hort. Kew. iii. 362 (1789) is characteristic *F. grandifolia* Ehrh., var. *caroliniana* (Loud.) Fern. & Rehd., forma *mollis* Fern. & Rehd. in RHODORA, ix. 114 (1907). Aiton's brief description, "foliis ovato-oblongis remote acute serratis acuminatis subtus tomentosis", indicates pubescence but not the leaf-base. His specimen shows the relatively broad leaves of the fruiting branch rounded to subcordate at base and the involucre with subdistant prickles. Those who consider this a separate species should note that *F. ferruginea* is, apparently, the earliest binomial for it.

*CYPRIPEDIUM REGINAE* Walt., forma **albolabium**, nom. nov. *C. spectabile* Salisb.,  $\beta$ . *album* Sweet, Brit. Flower Garden, iii. t. 240A (1828); *C. Reginae album* Rolfe in Orchid Rev. v. 196 (1897) and xix. 208 (1911); *C. reginae*, forma *album*, House in Bull. N. Y. State Mus., nos. 243-244: 37 (1923); not *C. album* Ait. Hort. Kew. iii. 303 (1789), basonym of all three combinations. (ait.)

When Sweet described the plant with "labello extus albo" he called the one with "labello incarnato" *Cypripedium spectabile*  $\alpha$ . *incarnatum*, and in the general synonymy of the two he cited *C. album* of Aiton. While it is possible to argue that Sweet did not mean that his  $\beta$ . *album* was truly *C. album* Ait., nomenclaturally, Aiton's name being there cited, must be considered the basonym. Sweet recognized that his  $\alpha$ . *incarnatum* was the plant which had long been cultivated in England and he said of the "beautiful white variety": "We had never before seen or heard of a white variety". It is unfortunate, then, that he picked up



Aiton's misleading name. Rolfe, nearly 80 years later (1897), left no doubt when he wrote: "A most beautiful albino of *Cypripedium Reginae*, better known as *C. spectabile*, might recently be seen in the Orchid house at Kew, in which the rose-pink colour had vanished from the lip, leaving it as pure snow-white as the sepals and petals. . . . The old specific name of *C. album* given by Aiton has been superseded by the still older *C. Reginae*, but can be most appropriately revived for the variety—*C. Reginae album*."

In describing *Cypripedium album* Aiton said nothing in his description about the lip or its color, although he called the plant "White Lady's Slipper" to contrast with yellow and purple *C. Calceolus* and with *C. acaule*, the latter "flore purpureo"; but he cited Plukenet's figure of the American plant "flore gemello [frequently so in *C. reginae*] candido venis purpureis striato". Since the plate in Bot. Mag. vi. t. 216 (1793), of the plant then being cultivated at Kew and elsewhere in England as *C. album* Ait., shows the roseate lip of ordinary *C. reginae*, we appealed for aid to Mr. Victor Summerhayes, Keeper of Orchids in the Herbarium at Kew. From his very illuminating letter of July 14, 1948 we quote:

We have a copy of an uncommon book by a Miss Margaret Meen entitled "Exotic Plants from the Royal Gardens at Kew", consisting of two parts both published in 1790. This consists of a number of folio coloured plates and plate 3 of part i represents *Cypripedium album*. In this plate the sepals and petals are white but the lip is quite dark reddish with a paler interior.

Taking this plate in conjunction with that in Botanical Magazine, t. 216 and Aiton's own citation of Plukenet's plant, there seems to me little doubt that the plant in general cultivation at that time, including Kew, had a pink or reddish lip and that the albino form, with pure white lip, was not grown until later. I quite agree with you that the name "album" cannot be applied to the white-lipped variety, at any rate not with Aiton's name associated with it.

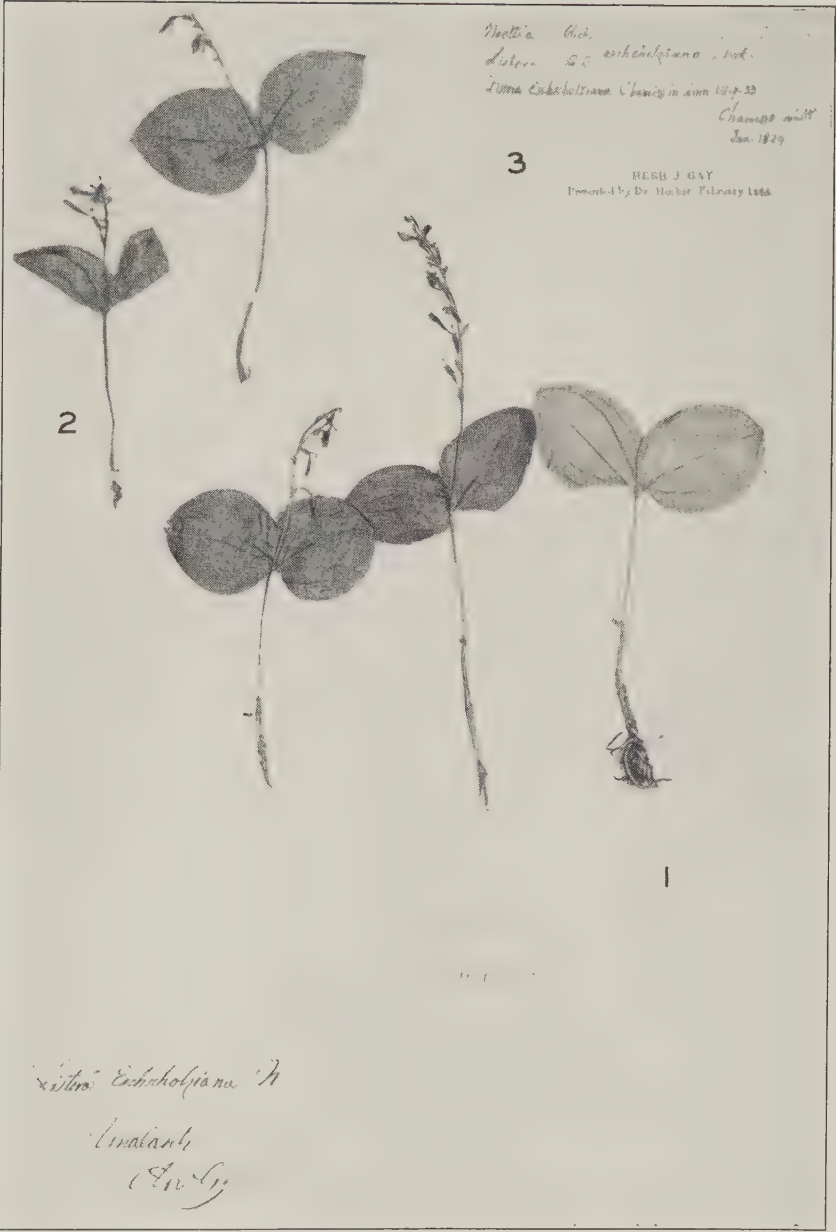
Most singularly, the brief diagnosis of *Cypripedium reginae* Walt. Fl. Carol. 222 (1778) contains the phrases "caule multifloro, flore albo magno". The specimen in the Fraser series (on p. 39) has two flowers and the lip is obviously darker than the sepals and petals; *i. e.* it was the usual roseate-lipped plant.

LISTERA BANKSIANA Lindl. Gen. & Sp. Orchid. Pl. 455 (1840); our PLATE 1116. The original sheet of this species in herb.

Lindley at Kew, our FIG. 1,  $\times \frac{2}{5}$ , contains two collections from Banks Island (on the west coast of British Columbia), collected by Menzies, the material at the right being the TYPE, but with two much better specimens at the left, also from Banks Island, *Menzies*, which are identical. Below the latter specimen has been added “?California Mr Menzies” which is confusing and an assumption not well according with the location of the original Banks Island, an island nearly 50 miles long and lying between latitudes 53 and 54 degrees, opposite Graham Island of the Queen Charlotte group. The specimens are a very close match for *L. caurina* Piper in *Erythea*, vi. 32 (1898), our FIG. 2,  $\times \frac{3}{5}$ , and the latter name should lapse in favor of *L. banksiana* Lindl., based upon “*Ophrys banksiana* Menzies MSS.”

Wiegand, in *Bull. Torr. Bot. Cl.* xxvi. 157 et seq. (1899), somewhat further complicated matters by assuming that the Banks Island plant is *L. convallarioides* (Sw.) Torr., from which, however, it differs in many characters, most notable being the relative length of bracts and pedicels. Notes made at Kew, where *L. banksiana* was examined, indicate that the bracts were “much shorter than the pedicels”. In *L. caurina* the bracts are described as “ $\frac{1}{3}$  the length of the pedicel”. In *L. convallarioides*, on the other hand, the bracts and pedicels are equal or with the bracts barely exceeding the pedicels and in *L. Eschscholzia* the pedicels are somewhat exceeded by the bracts. It would seem, therefore, that the identity is between the latter two species rather than that all four are identical. Wiegand believed that Piper’s *L. caurina* does not occur in Alaska (to the north of Banks Island), stating that “there is no other species [except *L. convallarioides*] of this section found in Alaska”. More recent collecting shows that *L. banksiana* (*L. caurina*) extends northward into southeastern Alaska, considerably to the north of Banks Island.

*LISTERA ESCHSCHOLZIANA* Cham. in *Linnaea* iii. 33 (1828); our PLATE 1117,  $\times \frac{1}{2}$ . There has been some question regarding the identity of this plant; Wiegand, l. c. 160, merely inferring from the description that it is *L. convallarioides* (Sw.) Torr.; while Ames, *Enum. Orchids U. S. & Can.* 75 (1924) made the note: “*Listera Eschscholoziana* Chamisso, which is questionably referred to *L. convallarioides* (Swartz) Nuttall [not a validly made



LISTERA ESCHSCHOLZIANA Chamisso = L. CONVALLARIOIDES (Sw.) Torr.: FIG. 1, ISOTYPE of *L. Eschscholziaana*,  $\times \frac{1}{2}$ , Chamisso in Herb. Gray.; FIGS. 2 and 3, two specimens,  $\times \frac{1}{2}$ , from Chamisso in Herb. J. Gay in the Lindley Herbarium (Kew).





combination by Nuttall], may be conspecific with *L. caurina* Piper". It is, consequently, worth noting that in the Gray Herbarium there are three plants of the original collection bearing Chamisso's own label. This collection, with the label, is shown in PLATE 1117, FIG. 1, the material also bearing Wiegand's identification as *L. convallarioides* and validation of the latter name by Hultén. Similar material from the herbarium of Jacques Gay is in the Lindley Herbarium at Kew, this marked by Gay "Chamisso misit Jan. 1829". These two specimens better displaying the broad lip are shown in FIG. 2.

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## TWO NEW NAMES IN *POPULUS*

ERNEST ROULEAU

A good geographical variety of *Populus balsamifera* L. is the tree that was known as *Populus balsamifera* var. *Michauxii* (Dode) Henry (*P. Tacamahacca* Mill. var. *Michauxii* (Dode) Farwell). It ranges from George River, Ungava, to the Thunder Bay District, Ontario, south to Newfoundland, Gaspé Peninsula, northern New England, northern New York and northern Michigan.

STOUT (Journ. N. Y. Bot. Gard. 30: 32. 1929) has claimed that *Populus candicans* Aiton represents the same variety and made the new combination *Populus Tacamahacca* var. *candicans* (Aiton) Stout in place of *P. Tacamahacca* var. *Michauxii*; the commonly cultivated Balm-of-Gilead being considered by him as a clone of this variety.

This variety is characterized by its cordate or subcordate leaves, very often strongly asymmetrical at the base, a little pubescent underneath along the veins, and by its slightly pubescent petioles.

If one goes back to DODE's description of *Populus Michauxii* (Bull. Soc. Hist. Nat. Autun, 18: 220, pl. 12, fig. 100. 1905; reprinted in Extr. Monogr. Inéd. *Populus* p. 62 et in Fedde, Rep. Spec. Nov. 3: 355. 1907), it is very surprising to find the following description:

100 F. tur. ovales-elliptiques, arrondies à la b., un peu en coeur à l'insertion du pétiole, acuminées; f. més.

sublancéolées, cunéiformes, un peu arrondies à la b., acuminées, subrhomboïdales; f. brach. elliptiques-deltoides, largement arrondies à la b., un peu en coeur à l'insertion du pétiole, aigües-acuminées; jeunes pétioles pubescents et jeunes feuilles ciliées, puis glabrescents; dents en scie peu profonde, peu apparentes; dessous des f. blanc, un peu roussâtre; turions un peu pubescents. . . . . **Pop. Michauxi.**

= *P. balsamifera* Michaux f., *Hist. Arb. for. Am. sept.* 1813 (*non* Nouv. Duh., L. pro parte.)  
Amérique du Nord. C\*\*.

The only mention of cordate or subcordate leaf is in the "un peu en coeur à l'insertion du pétiole", both for the macroblasts and the brachyblasts; that is to say that the leaf is a little cordate at its junction with the petiole, although the general outline is oval-elliptic, rounded at the base. Moreover, DODE's figures do not represent any cordate or subcordate leaves. In addition, the synonym given by DODE (i. e. *Populus balsamifera* Michx. f., *Hist. Arb. For. Am. Sept.* 3: 306, 307, t. 13, fig. 1. 1813) is a good illustration of typical *Populus balsamifera* with ovate leaves. So, *Populus Michauxi* Dode must be reduced to the synonymy of *P. balsamifera* L.

It is then necessary to propose a new name for this plant as the name-bringing synonym does not represent the identity of the tree as understood by HENRY, FARWELL, SARGENT, REHDER and others. I propose to associate this variety with the name of Professor MERRITT LYNDON FERNALD who has very often collected this variety in Newfoundland, Gaspé and Maine.

**POPULUS BALSAMIFERA** L., var. **Fernaldiana**, nom. nov. *Populus balsamifera* var. *Michauxii* Henry, *Gard. Chron.*, ser. 3, 59: 230. 1916 (as to plant involved only); *Populus balsamifera* var. *candicans* Gray, *Man. Bot. N. U. S.* (ed. 2) 419. 1856 (pro parte, as to plant involved only); *Populus Tacamahacca* var. *Michauxii* Farwell, *RHODORA* 21: 101. 1919 (as to plant involved only); *Populus Tacamahacca* var. *candicans* Stout, *Journ. N. Y. Bot. Gard.* 30: 32. 1929 (pro parte, as to plant involved only).

In order to verify STOUT's statement that the Balm-of-Gilead, i. e. *Populus candicans* Ait., was the same as *P. balsamifera* var. *Fernaldiana*, or but a clone of it, I asked Dr. GEORGE TAYLOR of the British Museum for a photograph of the type-specimen of *Populus candicans* Aiton, which he very kindly sent to me. The

type-specimen of AITON's species is but a macroblast of good straight *Populus balsamifera* so that AITON's name has to be reduced to the synonymy of that species. Of course, the easiest way to identify this tree has been to match the leaves with those illustrated by MICHAUX F. who was the first to draw a figure of what he thought was the newly described *Populus candicans* Aiton without referring to the type-specimen.

There has been much discussion about the status of the Balm-of-Gilead, since it has been confused with *Populus balsamifera* var. *Fernaldiana*, has never been found in the wild state (though often freely escaping from cultivation and then, sterile) and that it is known only as a pistillate tree. I prefer to consider the Balm-of-Gilead as a hybrid, propagated from a single clone.

That the Balm-of-Gilead has a series of characters which makes it resemble *Populus balsamifera*, I admit. The under-surface of the leaves is rusty, the petioles are only slightly flattened, but these are the only characters that lead one into *Populus* § *Tacamahacca*. On the other hand, the crenate teeth of the leaves, the long petioles, the type of venation, the long-pedicelled female flowers and the cordate leaves tend to prove that there is some blood of § *Aegirus* in it.

The petioles covered with stiff fulvous hairs, the lower surface of the leaves also covered with hairs, seem to indicate that the other parent of this hybrid might have been *Populus deltoides* Marsh. var. *missouriensis* Henry. Young specimens of the last variety have the leaves and petioles with the same type of pubescence as in the hybrid. In the hybrid, this pubescence persists, whilst in *P. deltoides* var. *missouriensis*, it usually disappears but sometimes persists (*P. deltoides* var. *missouriensis* f. *pilosa* (Sarg.) Palmer & Steyermark). It is quite probable that this hybrid originated in North America and that it was later introduced into European gardens.

In order to prevent future confusion as to the application of the name of the Balm-of-Gilead (i. e. *Populus candicans* sensu Michx. f. et auct. plur., non Ait.), I propose a new name that will recall its popular name, i. e.

× *POPULUS gileadensis* stat. et nom. nov. (*balsamifera* × *deltoides* var. *missouriensis*). *Populus candicans* sensu Michx. f., Hist. Arb. For. Am. Sept. 3: 308, 309, t. 13, fig. 2. 1813 (as to

plant involved only, non Aiton, Hortus Kewensis 3: 406. 1789); *Populus balsamifera* var. *candicans* Gray, Man. Bot. N. U. S. (ed. 2) 419. 1856 (pro parte, as to plant involved only); *Aigeiros candicans* Nieuwl., Am. Midl. Nat. 3: 223. 1914 (as to plant involved only); *Populus Tacamahacca* var. *candicans* Stout, Journ. N. Y. Bot. Gard. 30: 32. 1929 (pro parte, as to plant involved only); *Populus Tacamahacca* sensu Moss, Cambr. Brit. Fl. 2: 13. 1914; sensu Schinz & Thellung, Viert. Naturf. Gesell. Zürich 60: 349. 1915; sensu Farwell, RHODORA 21: 101. 1919 (as to plant involved only), not Miller, Gard. Dict. (ed. 8), no. 6. 1768); *P. ontariensis* Desf. [Cat. Hort. Reg. Par. 1829] ex Loudon, Arbor. Frut. Brit. (ed. 1), 3: 1676. 1838 (in synonymy).

The name *Populus ontariensis* Desf. was never validly published and there is still doubt if it can be properly reduced to the synonymy of  $\times P.$  *gileadensis*, since the specific epithet tends to show that the original tree seen by DESFONTAINES might have been an indigenous tree.

Dealing with the taxonomy and nomenclature of *Populus* is not an easy task. Before a satisfactory treatment of the species of the genus can be worked out, good specimens of flowers (male and female) collected at various stages, together with leaves (both of the macroblasts and the brachyblasts) collected from the same tree are very badly needed.

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## NOTES ON THE FLORA OF ONTARIO.

### I. EPIPACTIS HELLEBORINE

F. H. MONTGOMERY

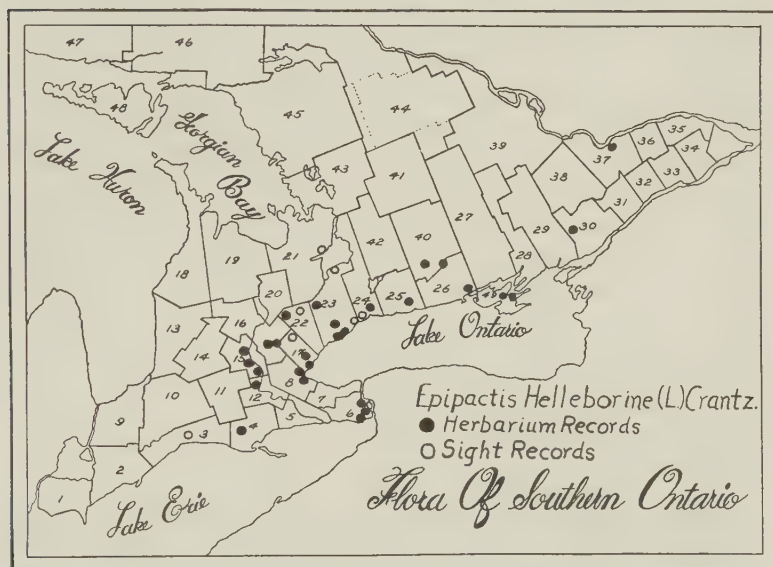
It is almost sixty years since the introduced orchid, the Broad-leaved Epipactis, *E. Helleborine* (L.) Crantz, was reported occurring near Toronto, Ontario, by Messrs. Otto and Ward White<sup>1</sup>. This first Canadian record was in 1890, and since that time the observation of it has been considered interesting, but unworthy of serious comment.

During the past few years my interest in the plant has been increased by frequently seeing it in the field, and by the receipt of specimens for identification. An appeal to herbaria and many naturalists for specimens and information brought to me a num-



ber of herbarium sheets and reports, and from these, I have prepared the following map showing what is known of its present distribution.

The counties for which information is available by herbarium specimens, represented by black dots, and recorded observations, shown by clear circles, are as follows: 3, Elgin; 4, Norfolk; 6, Welland; 8, Wentworth; 12, Brant; 15, Waterloo; 16, Wellington; 17, Halton; 21, Simcoe; 22, Peel; 23, York; 24, Ontario; 25,



Durham; 26, Northumberland; 30, Leeds; 37, Carleton; 40, Peterborough; 49, Prince Edward (See map).

It is not expected that this should represent a complete picture of its distribution, for it is undoubtedly much more widely spread than present records show. The fact that it is common at the eastern, western and northern limits shown on the map would seem to verify this supposition. More extensive collecting will probably show it existing in all of the counties along Lake Ontario and the St. Lawrence River, and along the Ottawa River to the vicinity of Ottawa. It is possible that it is rarer in south-western Ontario, since several competent observers and collectors have not reported it west of Waterloo County. Northward, it

is said to be very common around Lake Simcoe in Simcoe County, number 21 on the map.

The information also shows that the orchid is found most frequently in open deciduous woods, borders of woods, and on wooded hillsides, particularly along the river valleys. Occasionally it is found in open spaces such as meadows, lawns and gardens. *Epipactis*, like many other Old World introductions, is apparently finding its Ontario home very much to its liking, for it occurs commonly in most of the localities shown on the map, and in a few places becomes frequent enough to be classed as a weed.

During 1947, I received an interesting specimen collected at Cedar Springs, near Hamilton, by Miss Elizabeth Taylor of McMaster University. She describes the plant as having creamy colored leaves and pinkish flowers, instead of the usual green leaves and purple tinged, greenish flowers. Frère Marie Victorin describes apparently similar variations occurring in plants found in Quebec<sup>2</sup>.

I wish to thank all who have assisted in this investigation, particularly Mr. Hubert H. Brown of Toronto, from whose herbarium much material was obtained, and Dr. F. A. Clarkson, also of Toronto, for much pertinent information.

ONTARIO AGRICULTURAL COLLEGE,  
Guelph, Ontario.

- (1) MACOUN, J. M., *The Canadian Record of Science*, 1894.
- (2) MARIE-VICTORIN, FRÈRE, *Flore Laurentienne*, Imprimerie de la Salle, Montreal, 1935.

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ERIGERON COMPOSITUS Pursh, var. DISCOIDEUS Gray, forma **trifidus** (Hook.), stat. nov. *E. trifidus* Hook. Fl. Bor.-Am. ii. 17, t. cxx (1834). *E. compositus*, var. *trifidus* (Hook.) Gray, Proc. Am. Acad. xvi. 90 (1880).

It is most unfortunate that the rules of nomenclature demand that, because of priority of publication, the name of a trivial and unusual form (var. *discoideus*) must be taken up to include a wide-ranging and locally abundant plant with showy ligules and that the latter has to be treated as a mere form of the almost aberrant state of the inclusive variety. In the Rocky Mountain area, in Arctic America and Greenland, as well as on the Gaspé

Peninsula, the abundant plant is, as noted, the ligulate-flowered one, while the discoid plants are very exceptional ones growing with them. In Brittonia, vi. 242-244 (1947) Cronquist treats plants with leaves "mostly 2-3 times ternate" as var. *glabratus* Macoun (1884), this most inadequately described merely as "Perfectly smooth"—inadequately because the latest monographer of the genus does not use the degree of pubescence or its absence as of importance in the species. By him plants with "Leaves mostly only once ternate" are called a different variety, var. *discoideus* Gray (1862), this variety including the basic *E. trifidus* Hook. and *E. pedatus* Nutt., *E. compositus* var. *trifidus* (Hook.) Gray, *E. Gormanii* Greene and several later synonyms. In the Gray Herbarium Cronquist has annotated many specimens from Greenland and Gaspé as var. *discoideus*, although they show, especially among the newer leaves, plenty of twice ternate blades, and other eastern, as well as western, specimens with just such leaves are similarly annotated; while in eastern strongly pubescent plants, annotated by the monographer as var. *glabratus*, leaves variously cleft, from simply trifid to twice ternate, are readily seen. In fact, the type of var. *discoideus* (Parry no. 5) shows several twice ternate blades, while of the leaves of his *E. trifidus* Hooker wrote: "a few . . . being compound". Furthermore, Nuttall's description of the leaves of his *E. pedatus* read: "primary leaves simple or trifid, afterwards pedate, unequally five-cleft"; and Greene's account of his *E. Gormanii* was "Earliest foliage merely 3-cleft or lobed . . . later leaves with the lateral lobes, and sometimes the terminal one, 3-lobed". In other words, the later and abundant leaves are often quite as much cleft as in the so-called var. *glabratus*.

In view of the magnification of the value of the degree of leaf-cutting and the complete neglect of the fact that most plants treated by Cronquist as *E. compositus*, var. *discoideus* have showy ligules, it is disconcerting, to put it mildly, to those whose field-experience has taught them that the scattered or few almost rayless individuals which, by close watching, may be found in a large colony of definitely ligulate *Erigeron strigosus*, are casual sports—it is disconcerting to see that a monographer of the genus maintains as a good variety *E. strigosus*, var. *discoideus* Robbins, the plants with "ligules about equalling the



disk", *i. e.* essentially invisible, and then, on top of that, adds as a "var. nov." the plants with ligules obsolete, these being var. *eligulatus* Cronquist. Now, as stated, careful observers know that such aberrations (of the plants) are not true varieties, in the sense of having definite ranges. It should be noted, therefore, that when var. *discoideus* of Robbins was published by Gray, Man. ed. 5: 237 (1867) it was not given a separate paragraph nor was its name in bold-face type. As Gray explicitly stated, p. 16, it was one of the variations "which cannot be doubted" to belong in the species, while those to which he gave independent paragraphs and bold-face type (*Thalictrum purpurascens* var. *ceriferum*, *Ranunculus Flammula* var. *reptans*, or *Geum radiatum* var. *Peckii*, for example) were "so distinct and peculiar that they have been, or readily may be, taken for species." The varieties of Gray's first group are often such as are now generally considered to be *forms*, a term which he did not use in its technical sense. As reflecting the understanding of those whose field-observations have been exceptionally accurate, one may quote Dame & Collins, in their Flora of Middlesex County, Massachusetts, 49 (1888) under *E. strigosus* "the form known as var. **discoideus**"; while the reduction of it essentially to synonymy by Gray (Synoptical Fl.) and its omission by Britton & Brown are eloquent. As a striking form *discoideus* is interesting but the difference from it of var. *eligulatus* seems not very practical nor necessary.—M. L. FERNALD.

Volume 50, no. 596, including pages 181–216 and plates 1103–1111, was issued 16 August, 1948.



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